

Environmental Assessment

for the

**Implementation
of the
Airfield Obstructions Management Plan
Eielson Air Force Base, Alaska**

**354 CES/CEVP
Eielson AFB, Alaska
August 2007**

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
for the
Implementation of Eielson Air Force Base's (Eielson)
Airfield Obstruction Management Plan (AOMP)
Environmental Assessment (EA)

Introduction

Eielson is proposing to bring its runway clear zone into compliance with Air Force regulations and requirements. At the present time an estimated 250 acres of trees are within the flightline imaginary surfaces as defined in the *Unified Facilities Criteria (UFC) 3-260-01 for Airfield and Heliport Planning and Design*. To eliminate the hazard associated with these trees, Eielson is proposing to implement an AOMP which calls for the removal of trees that pose as airfield obstructions over a 5- to 10-year period.

Description of the Proposed Action

The proposed action will result in the removal of trees that pose as airfield obstructions in approximately 43 acres of white spruce, birch, and aspen trees that are situated along the western boundary of Eielson's flightline. Portions of this area may only receive partial clearing of trees. All tree obstacles that intersect the imaginary surfaces of the airfield, including the approach-departure clearance surface and the transitional surface, will be trimmed 10 feet below the actual imaginary surface to allow for a margin of error and future growth of trees. Any marketable trees cut will be disposed of in accordance with Eielson's Integrated Natural Resource Management Plan. Those areas that will be clear-cut will be converted to grass areas that can be maintained by mowing.

Alternatives to the Proposed Action

One action alternative to the proposed action was identified. Alternative 1 would result in the clear-cutting of all trees that intersect the flightline's imaginary surfaces. This could result in as many as 200 to 250 acres of trees being clear-cut. Once the trees were cut, stumps would be removed, the area leveled, and grass planted. The areas would be maintained by mowing.

No Action Alternative

The no action alternative would result in no work being undertaken to improve safety for the operation of aircraft at Eielson's airfield. Airfield hazards would continue to exist and result in unacceptable risks to aircraft at Eielson.

Environmental Impacts of the Proposed Action

Wetlands

The proposed project will not result in impacts to wetlands in the vicinity of the project area.

Biological Resources

Impacts to biological resources from the proposed project are expected to be moderate. Wildlife use of the project area is limited to a variety of birds and a few small mammals such as fox, marten, and snowshoe hare. A large portion of the forested area that will be cut is isolated from other similar habitat by the flightline and the Richardson Highway, fragmenting it and reducing its value to wildlife. Bird nesting use of this habitat is generally discouraged due to its proximity to aircraft noise and movement.

Threatened or Endangered Species

There are no threatened or endangered species in the project area. The project area is not suitable habitat for any of the threatened or endangered species occurring in the Alaskan interior.

Historical or Cultural Resources

Most archeological sites on Eielson lands have been identified and mapped. The proposed project is not associated with any known sites. In the event that historic or cultural sites are discovered during project construction, activities will be halted and a professional archeologist will evaluate the find.

Air Quality

The proposed actions will have minor air quality impacts during the operation of heavy equipment causing fugitive dust and machinery exhaust. Such impacts will be highly localized and temporary in nature.

Mitigation

Due to substantial tree loss resulting from the proposed action, mitigation in the form of a tree planting program will be implemented. Eielson's Natural Resource Management Section will develop a tree planting schedule in conjunction with its Tree City USA program of which it has been an active member for the past 14 years. The areas and extent of reforestation will be incorporated into the base's Integrated Natural Resource Management Plan.

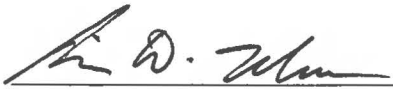
Public Comment

No public comment was received from the public noticing of the EA/FONSI for this project.

Findings

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) implementing regulations for NEPA (40 CFR Part 1500-1508), and Air Force Instruction 32-7061, *Environmental Impact Analysis Process* (32 CFR Part 989), the Air Force has conducted an EA for the improvement of safety in the vicinity of the airfield. This FONSI has been developed pursuant to information provided in the accompanying EA.

Finding of No Significant Impact: Based on this EA, which was conducted in accordance with the requirements of NEPA, CEQ, and Air Force Instructions, I conclude that the removal of airfield obstructions associated with Eielson's flightline will not result in significant impacts to the environment and that the preparation of an environmental impact statement is not warranted.



BRIAN D. MAAS
Colonel, USAF
Vice Commander


Date

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Airfield Obstructions Management Plan Environmental Assessment

1.0 Purpose and Need for Action

Section 1 provides a description of the purpose of and need for the proposed action.

1.1 Background and Objectives for the Proposed Action

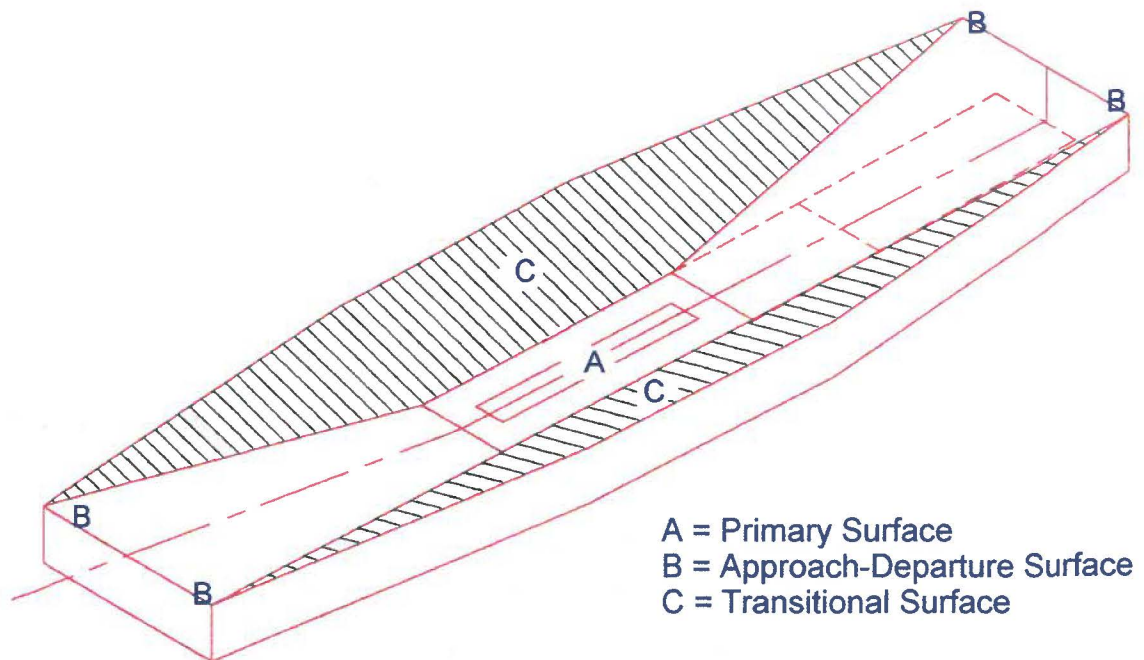
1.1.1 Eielson Air Force Base (Eielson) is proposing to reduce airfield obstructions that currently present a high risk to aircraft that utilize the base runway. These obstructions are mainly in the form of trees that exist on the west side of the flightline. Eielson is proposing to cut these trees so that the runway will meet the standards established by Air Force airfield operation guidelines.

1.1.2 The 354 Fighter Wing (FW) serves as the hosting unit at Eielson with F-16 C/D Fighting Falcon aircraft. A variety of transient and special mission aircraft operate at Eielson, particularly during major flying exercises such as Eielson's premier RED FLAG-Alaska training exercises. The 168th Air Refueling Wing (ARW) is also based at Eielson AFB and currently flies KC-135 aircraft. Eielson was established in 1944 and is currently part of the Pacific Air Forces' Command.

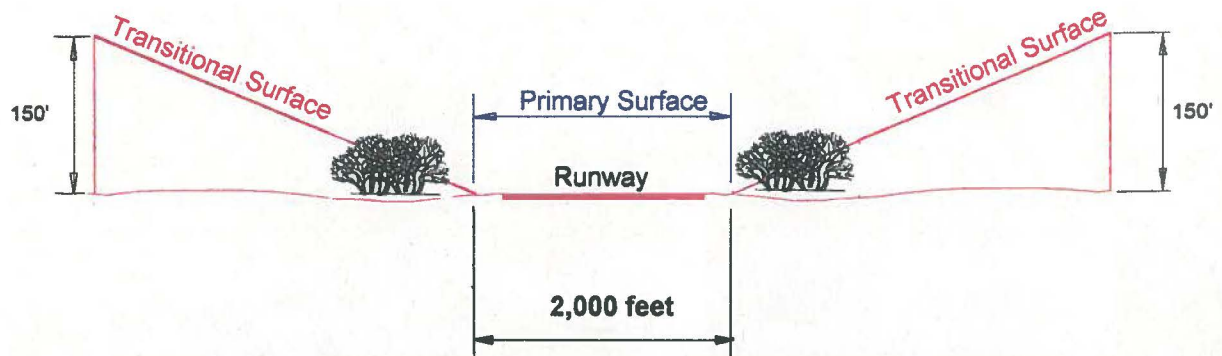
1.1.3 The 354 FW operates, maintains, and trains combat forces in close air support and interdiction missions for war plans in three operational theaters. The 354 FW's mission is to train and equip personnel for close air support of ground troops in an arctic environment. The 168 ARW is the primary tanker unit of the Pacific Rim, annually transferring over 17 million pounds of fuel in flight to predominantly active duty aircraft.

1.1.4 In the furtherance of its mission, Eielson maintains an airfield that provides a 14,470 foot runway for the operation of a variety of military aircraft. Assigned aircraft, as well as all the other transient aircraft that utilizes the base airfield, accounted for more than 13,000 sorties during 2006. Maintaining safe flying and operational conditions for all of these aircraft is an extremely important aspect of Eielson's mission.

1.1.5 The Air Force's *Unified Facilities Criteria 3-260-01 for Airfield and Heliport Planning and Design* defines the extent and restrictions of three applicable airfield imaginary surfaces. The primary imaginary surface (PS) is centered lengthwise on the runway and is 2,000-feet-wide and extends 200 feet beyond the end of the runway. Fixed and mobile objects, including trees, are not permitted within this area unless required for airfield operations. The approach-departure clearance imaginary surface (ADS) begins at the end of the PS and has a slope ratio of 50:1. This surface extends outward 25,000 feet from the PS at each end of the runway and rises to a height of 500 feet and a width of 9,000 feet. The third surface is the transitional imaginary surface (TS) and it begins at the sides of the PS and rises outward at a 7:1 slope to an elevation of 150 feet. These surface relationships are displayed in Figure 1-1.



Isometric View of Imaginary Surfaces



Cross Section View of Imaginary Surfaces

Figure 1-1 – Airfield Imaginary Surfaces

1.1.6 To address the need for removing obstructions from Eielson's airfield, an Airfield Obstruction Management Plan (AOMP) was formulated. It was developed by the Airfield Waiver Working Group, comprised of representatives from the Civil Engineer Squadron, Airfield Operations, Airfield Safety, and Natural Resources Management. The group developed a plan that addressed the need to incrementally remove approximately 43 acres of trees that currently present a hazard to aircraft. Additional tree removal or trimming may eventually be needed once a more complete survey is conducted. The AOMP recommends that trees be cut in approximate 5-acre per year increments.

1.2 Location of the Proposed Action

1.2.1 Eielson is located in the broad Tanana River Valley approximately 28 miles from Fairbanks in Alaska's central interior (Figure 1-2). The climate is harsh and dry with short, warm summers giving brief respite from frigid winters. The Tanana River, in the vicinity of Eielson, presents a broad alluvial floodplain with braided stream channels and low-gradient tributary sloughs that crisscross a mixture of black spruce wetlands and white spruce/paper birch uplands. Other communities near Eielson include Moose Creek, immediately to the north and the Salcha area that stretches for 30 miles south of the base.

1.2.2 Eielson lands include 19,790 contiguous acres bounded on the west by the Richardson Highway and on the north and east by Army land (Yukon Training Area). Approximately 51 percent, or 10,133 acres, of Eielson is classified as wetlands with 9,391 acres being vegetated wetlands and the remainder being lakes, ponds, and streams. Most of the remaining land is primarily the result of placing alluvial gravel fill to provide an elevated building site for base structures. All of the lands that would be potentially impacted by the proposed action are this type of built-up land. The project area lies on the west side of the flightline and does not include wetlands.

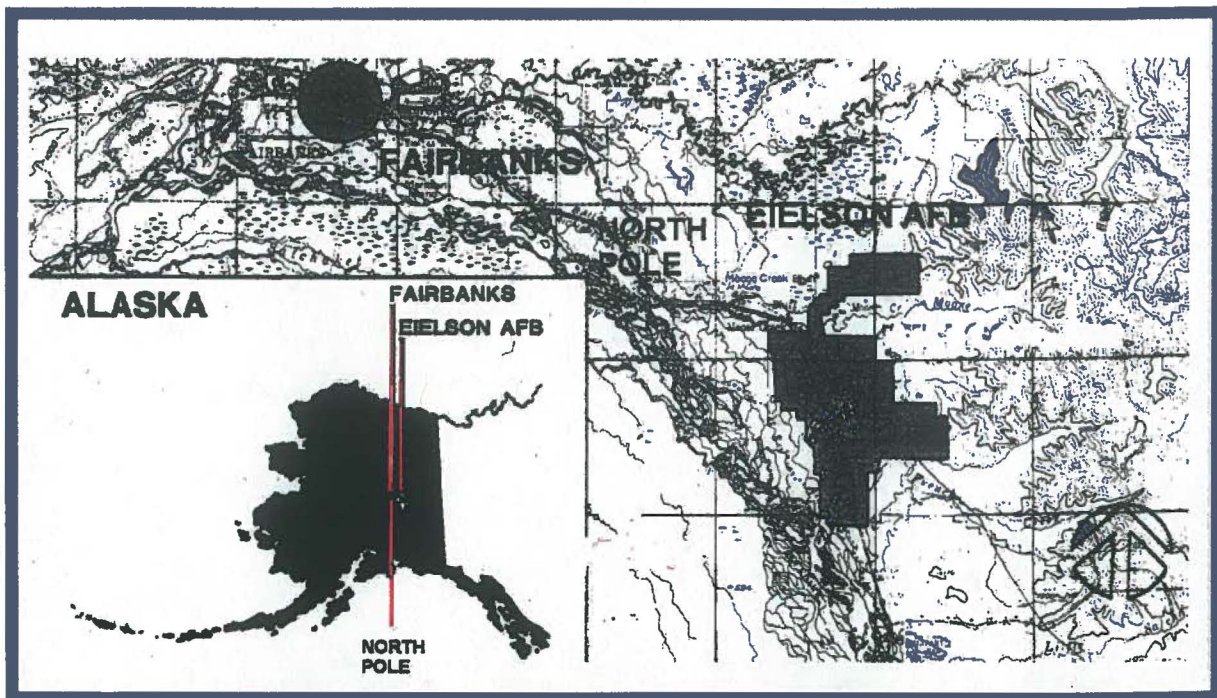


Figure 1-2 – Regional Location Map

1.3 Decision to be Made and Decision Maker

1.3.1 As required by 32 CFR Part 989, the *Environmental Impact Analysis Process* will be used to determine what are the potential environmental consequences of removing airfield obstructions in the form of trees from within the vicinity of Eielson's flightline. This environmental assessment (EA) is intended to satisfy these requirements. The proposed action and all alternatives considered will be addressed in detail in Section 2.0 of this document. A

description of the resources associated with the areas affected by all alternatives will be provided in Section 3.0 and the impacts that could result from each one are discussed in Section 4.0.

1.3.2 Based on the evaluation of impacts in the EA, a Finding Of No Significant Impact (FONSI) will be published if there is a finding of no significant environmental impacts for the proposed action. If it is determined that the proposed action will have significant environmental impacts, and appropriate mitigation measures applied will not lessen the impacts to below the threshold of significant, then the proposed project will be evaluated in an Environmental Impact Statement.

1.3.3 The EA, a draft FONSI (if applicable), and all other appropriate planning documents will be provided to the Eielson Vice Commander, the decision maker, for review and consideration. If, based on a review by the decision maker of all pertinent information, a FONSI is proposed, a public notice will be published in accordance with 40 CFR 1506.6. All interested parties will have 30 days to comment on the decision to the Air Force. All comments will be reviewed and evaluated at the end of the 30-day comment period. All substantive comments will be considered prior to signing the FONSI.

1.4 Project Scoping/Significant Issues

This section provides a summary of all issues raised during the scoping that were considered significant enough to be addressed in the EA. The scoping process typically involves meeting with potentially interested parties, including state and federal regulatory agencies that have oversight authority, and base groups that have responsibility for flightline operations and insuring airfield safety. All potentially interested parties were contacted, but only Eielson groups chose to participate beyond providing comments to Eielson. The only outside agency to provide comments was the US Fish and Wildlife Service that made recommendations regarding time of year restrictions for cutting trees.

- *Loss of bird nesting habitat.* The proposed actions, as well as alternative 1, call for the clear-cutting of trees in the vicinity of the flightline. It may also result in additional trees being selectively cut and others topped.
- *The full utilization of any timber that has commercial value.* There is some commercial value of the timber to be cut. It is mainly as firewood. Utilization of the wood for this purpose is recommended by the AOMP and required by Eielson's Integrated Natural Resource Management Plan.

1.5 Federal, State, and Local Permits Needed for Project Implementation

No permits from local, state, or federal agencies will be required for the proposed project and alternatives.

2.0 Description of the Proposed Action and Alternatives

Section 2.0 provides a description of alternatives considered that would achieve the purpose and need described in Section 1.0. The proposed action, one action alternative, and a no action alternative are described in this section.

2.1 Criteria Used to Develop the Proposed Action and Alternatives

The development of a proposed action and appropriate alternatives for analysis in this document considered the following criteria:

2.1.1 Unified Facilities Criteria 3-260-01 for Airfield and Heliport Planning and Design: This Air Force guidance document establishes the extent and restrictions of three applicable airfield imaginary surfaces. These surfaces determine the extent to which structures (natural or man-made) must be excluded from areas adjacent to the runway at an Air Force airfield.

2.1.2 Air Force Instruction (AFI) 32-1123: This AFI includes the guidance for establishment of clear zones for an airfield. Airfield clear zones are areas associated with the ends of runways and prescribe which airfield structures can be sited in these zones.

2.1.3 Integrated Natural Resource Management Plan: This is a management plan that establishes guidelines for the management of the base's natural resources. Removal of trees in large acreages, as is required in the proposed action and alternative 1, should be undertaken in compliance with resource management objectives stated in the plan. In the case of this project, all trees removed that are useable for firewood should be salvaged and utilized in an appropriate manner.

2.1.4 Airfield Obstruction Management Plan: Plan developed by the Airfield Waiver Working Group, comprised of representatives from the Civil Engineer Squadron, Airfield Operations, Airfield Safety, and Natural Resources Management. Established areas for tree removal.

2.2 Proposed Action – Remove Airfield Obstructions That Currently Impact the Transitional and Approach-Departure Imaginary Surfaces

2.2.1 At the present time the transitional imaginary surface and the approach-departure imaginary surface have within their footprint trees that are considered aircraft obstructions (Figure 2-1). To eliminate these airfield obstructions, the trees would be removed or at a minimum their tops would be trimmed so that they would be 10 feet or more below the actual elevation of the imaginary surface. Under this alternative, trees that are obstructions would be either removed entirely or trimmed to meet the height restriction requirement set forth in Air Force airfield safety criteria.

2.2.2 Currently there are approximately 43 acres of trees that would need to be clear-cut because they intersect the airfield imaginary surfaces and are hazards to aircraft. The hydro-axed areas would have the larger stumps removed and then the ground disked to break up root systems and

smaller tree stumps. Next, the area is leveled using a bulldozer that would knock down the high areas and fill in the low ones. The organics in the soil are allowed to break down over the course of two full yearly, seasonal cycles. Eventually the areas would be seeded with native grasses so that they can be maintained by mowing on an annual basis.

2.2.3 Trees in the vicinity of the imaginary surfaces will be surveyed and their heights relative to the elevation of the imaginary surfaces established. Those trees that could be trimmed and still remain healthy, will be cut to the required height. If it is determined that the tree would not survive, it will be cut down.

2.2.4 The obstruction removal process will be implemented over the next several years, treating approximately 5 acres of trees per year for the next 8 to 10 years. The areas earmarked for treatment will be prioritized, addressing those areas that are closest to the airfield and creating the highest risk first.

2.2.5 To mitigate for losses of forest habitat that will result from this project, Eielson's Natural Resource Management Section would develop a tree planting schedule in conjunction with their Tree City USA program that will replace losses due to airfield obstruction removal.

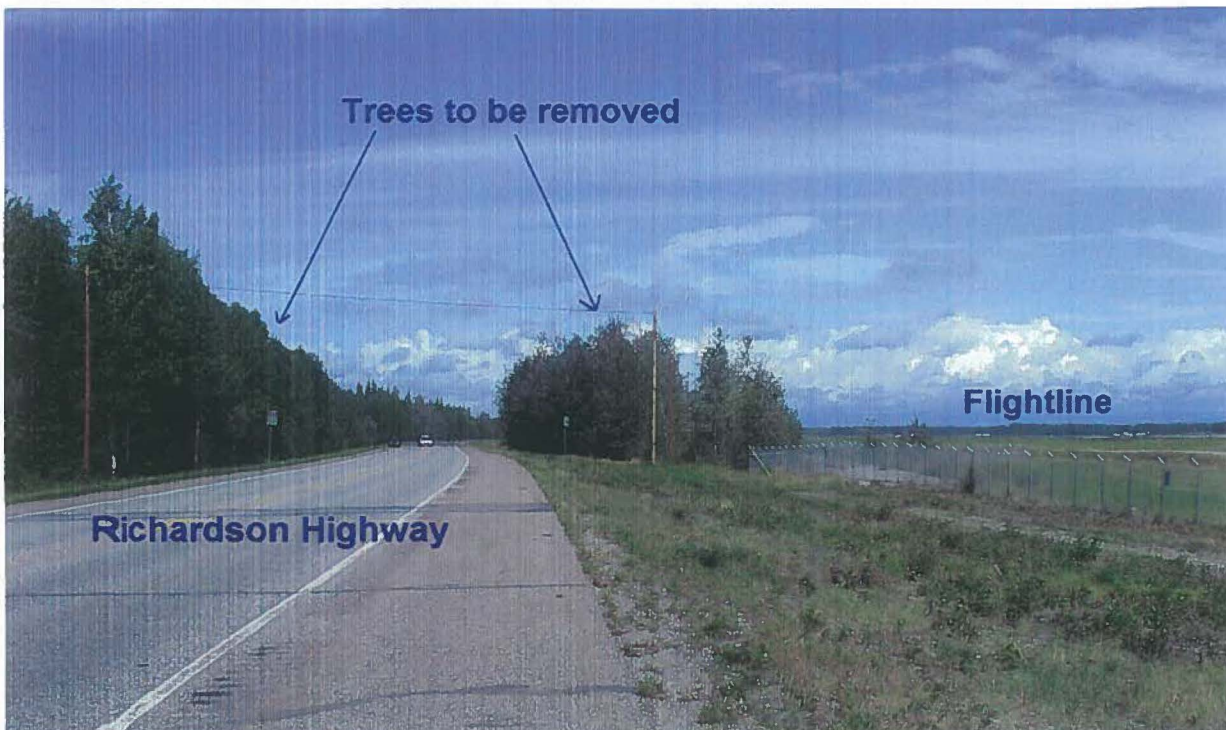


Figure 2-2 – Project Area

2.3 Alternative 1 – Remove Airfield Obstructions by Clear-Cutting All Trees That Are Within the Imaginary Surfaces

2.3.1 This alternative would also address those areas where trees are airfield hazards and reside within the TS and ADS imaginary surfaces. However, instead of selectively cutting only trees that represent a hazard, all trees in an area would be clear-cut, stumps removed, and areas leveled

and planted with grass. This would reduce maintenance costs and eliminate the need for future tree cutting when trees have grown taller. Hydro-axing would be used for initially clearing the trees. This method chops and shreds trees up to 4-inches in diameter into small woodchips.

2.3.2 Once hydro-axed, the larger stumps would be removed and the area leveled. After this, the area would be disked to break up root systems and smaller tree stumps. Over the next 2 years, the organics in the soil would be allowed to break down. Eventually the areas would be seeded with native grasses so the areas could be maintained by mowing on an annual basis.

2.3.3 All trees that have marketable value as firewood will be cut and set aside before the hydro-axing would occur. This is typically trees 5-inches in diameter and larger. It is estimated that approximately 200 acres of trees could be hydro-axed under this alternative. The exact amount would be determined by a survey of tree heights.

2.3.4 To mitigate for losses of forest habitat that will result from this alternative, Eielson's Natural Resource Management Section would develop a tree planting schedule in conjunction with their Tree City USA program that will replace losses due to airfield obstruction removal.

2.4 No Action Alternative

This alternative would result in Eielson taking no action to eliminate existing airfield hazards. Current flying operations occur under waivers that allow planes to operate, but with the caveat that they are temporary and that the violations will ultimately be addressed. This would not be an acceptable long-term solution.

2.5 Impact Comparison Matrix

Resource	Proposed Action	Alternative 1	No Action Alternative
Soils	Minor surface disturbance from hydro-axing, stump removal, and ground leveling, up to 50 acres.	Minor surface disturbance from hydro-axing, stump removal, and ground leveling, up to 200 acres.	Impacts to soils could result from fuel spills associated with plane crashes if airfield obstructions are not removed.
Surface Water	No impacts to surface waters would likely result from this alternative.	More extensive tree clearing could result in increased turbidity in surface runoff which could eventually reach surface water bodies.	Impacts to surface water could result from fuel spills from plane crashes.
Safety	Significant increase in aircraft safety by eliminating trees as airfield hazards.	Significant increase in aircraft safety by eliminating trees as airfield hazards.	Continued unacceptable level of risk to aircraft flying out of Eielson.
Noise	Minor, short-term noise during construction phase.	More extensive, but short-term impacts from machinery noise.	No impacts from noise as a result of the no action alternative.
Air Quality	Minor, short-term impacts from machinery related fugitive dust during construction phase.	More extensive, but still short-term impacts, from machinery related fugitive dust during construction phase.	No impacts to air quality from the no action alternative.
Biological Resources/ Wildlife	Loss of a minimum of 43 acres of forested habitat, resulting in impacts to birds and small mammals.	Loss of a minimum of 200 acres of forested habitat, resulting in impacts to birds and small mammals.	No impacts to wildlife from the no action alternative.

3.0 Affected Environment

This section describes relevant resource components of the existing environment that might be impacted by the proposed project and alternatives. Only environmental components relevant to the issues and objectives of this EA are described.

3.1 Physical Environment

Eielson encompasses approximately 19,790 acres and is isolated from major urban areas. The portion of Eielson that contains the areas associated with the action alternatives lies on the abandoned floodplain of the Tanana River, with elevations ranging from 525 to 530 feet above mean sea level. The surface of the floodplain is relatively smooth and slopes gently downward to the northwest at a gradient of about 6-feet per mile.

3.1.1 Geology/Soils

3.1.1.1 The area in the vicinity of Eielson was not glaciated during the last ice age. The majority of the subsurface geologic formations of the central plateau of Alaska are primarily from the Permian and Devonian periods of the Paleozoic era.

3.1.1.2 Soils in the Tanana River Valley consist of unconsolidated silty sands and gravels, organic and sandy silts, and clays. Floodplain soils nearest the active channels are sandy with a thin silt loam layer on the surface. On higher terraces, the soils become predominately silt from the Salchaket series. Along older river terraces, silt loam soils which contain significant organic components often dominate. These soils tend to be cold and wet and are generally underlain by permafrost. Approximately two-thirds of Eielson is covered with soils containing discontinuous permafrost. This preponderance of permafrost soils contributes to the large percentage of vegetated wetlands occurring on undeveloped base lands.

3.1.1.3 The developed portion of the base has, to a large extent, been constructed by filling above the estimated 100-year flood elevation with gravel from local borrow pits. Most of these areas, prior to being filled, were functioning wetlands similar to areas in the clear zone that are proposed for vegetation removal and leveling (see Figure 3-1). Soils in the proposed project area are generally the result of filling and are not native.

3.1.2 Groundwater

Eielson is located over a shallow, unconfined aquifer. The depth of the aquifer is not known as the depth to bedrock in the vicinity of the base has not been established. The aquifer has a regional gradient of about 5-feet per mile flowing to the north-northwest. The water table varies from the surface in adjacent wetlands to 10 feet below ground level in developed areas. The base uses the local aquifer for its drinking water and monitors groundwater quality in a number of locations as part of its Installation Restoration Program. Localized contamination of the aquifer has been identified in the industrial area of the base, but the overall quality of groundwater at Eielson is excellent.



Figure 3-1 – Eielson Under Construction, circa 1951.

3.1.3 Surface Water and Wetlands

3.1.3.1 Aquatic bodies on Eielson include streams, wetlands, and lakes. There are approximately 28 miles of streams; 10,133 acres of wetlands; 12 lakes (Lilly Lake is natural and the remaining 11 are man-made) and 80 ponds (10 naturally-occurring and 70 man-made) totaling 560 acres; and 6,770 acres of floodplains on the main base. The man-made lakes and ponds were created during the excavation of gravel deposits for use as fill material for construction projects on base. Surface drainage on Eielson is generally in a north-northwest

direction and parallel to the Tanana River. Five streams flow through the base and discharge into the Tanana River via Piledriver Slough.

3.1.3.2 Approximately 51 percent, or 10,133 acres, of Eielson's undeveloped land is classified as wetlands with 9,391 acres being vegetated wetlands and the remainder being lakes, ponds, and streams (see Figure 3-1). Wetlands and low-gradient, alluvial streams comprise most of the surface water resources on Eielson, with wetlands dominating the low-lying areas within and surrounding the installation. Most wetland areas were created as a result of surface waters becoming trapped in the thawed layer over the permanently frozen subsurface (permafrost). Flood periods tend to occur during spring snowmelt and in middle to late summer when heavy rains or warm air quickly brings glacier fed mountain streams to flood capacity. Several lakes and extensive wetlands surround the airfield in the cantonment area. Among these are Bear, Polaris, Moose, Hidden, Pike, Rainbow, Scout, Grayling, and Tar Kettle lakes. Creeks that can be found in the vicinity of the airfield include French and Moose creeks. No wetlands would be directly impacted by the removal of trees in the vicinity of the airfield.

3.1.3.3 Piledriver and Garrison sloughs are the two largest streams in the vicinity of the airfield. Piledriver Slough, which discharges into the Tanana River, is located along the western edge of Eielson, approximately 4,000 feet west of the airfield, and flows parallel to the runway. Approximately 12 miles of Piledriver Slough occurs on Eielson. The slough receives no runoff from the urban, developed area of the base and has good water quality. Garrison Slough is a small drainage that goes through the heart of the industrial area of the base. In addition to normal surface runoff, Garrison Slough also receives input from groundwater and discharge water from the drinking water treatment plant that is located adjacent to the slough approximately 2 miles downstream from the project area. The course of Garrison Slough has been channelized and straightened over the years as the base has expanded and developed and encroached on the stream. Water quality of Garrison Slough is generally good with the exception of elevated levels of polychlorinated biphenyls (PCBs) in a segment approximately 3 miles downstream from the project area. Fishing in that portion of the stream has been designated off-limits because of the potential for bioaccumulation of PCBs in fish tissue.

3.1.4 Floodplains

Portions of Eielson are within the 100-year floodplain of several streams, including French Creek, Moose Creek, Garrison Slough, and Piledriver Slough. The project areas associated with the proposed action and alternative 1 are not within the 100-year floodplain.

3.1.5 Safety

3.1.5.1 Operational activities conducted by Eielson are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements. To minimize the results of a potential accident involving aircraft operating from Eielson, clear zones (CZ), accident-potential zones, and safety zones (SZ) have been established for the airfield. In developing these zones, Eielson is considered to have one Class B runway. Within a CZ and SZ, construction is either prohibited (CZ) or limited in terms of facility placement and height (SZ).

3.1.5.2 The CZ is an area at each end of the runway that is 3,000-foot-wide by 3,000-foot-long. The accident potential in this area is so high that no building is allowed. The Air Force has, in recent years, denied most requests for waivers of structures in the CZ as they are actively trying to get bases to eliminate circumstances that would otherwise require waivers.

3.1.5.3 Other aircraft operational safety issues that apply to Eielson are contained in the Air Force's *Unified Facilities Criteria 3-260-01 for Airfield and Heliport Planning and Design*. These standards define the extent and restrictions of three applicable airfield imaginary surfaces. The primary surface is centered lengthwise on the runway and is 2,000-foot-wide and extends 200 feet beyond the end of the runway. Fixed and mobile objects, including trees, are not permitted within this area unless required for airfield operations. The approach-departure clearance surface begins at the end of the primary surface and has a slope ratio of 50:1. This surface extends outward 25,000 feet from the primary surface at each end of the runway and rises to a height of 500 feet and a width of 9,000 feet. The third surface is the transitional surface and it begins at the sides of the primary surface and rises outward at a 7:1 slope to an elevation of 150 feet.

3.1.6 Noise

Aircraft generate by far the most noise on Eielson. Noise levels associated with aircraft during flying hours can exceed 80 decibels (dB) in the vicinity of the flightline; however, the decibel level drops off to a maximum of 70-dB in the closest residential area, Moose Creek, just north of the base. Construction noise is potentially another source of noise, but it is not considered to be a concern due to its temporary nature and relatively low dB level. Figure 3-2 is a chart that provides a scale of noise levels associated with typical daily activities. None of the noise anticipated from activities associated with any of the action alternatives would exceed levels that would be of concern and would be far lower than any levels that are currently generated by aircraft operating at the base.

3.1.7 Air Quality

3.1.7.1 Air quality is generally good at Eielson. Although portions of the North Star Borough (Fairbanks and North Pole) of which Eielson is also a part of are in maintenance status for carbon monoxide, Eielson is far enough south to not be included or affected. The Clean Air Act designates areas as *attainment*, *non-attainment*, *maintenance*, or *unclassified* with respect to national ambient air quality standards (NAAQS). Non-attainment and maintenance areas are locales that have recently violated one or more of the NAAQS and must satisfy the requirements of State and Federal Implementation Plans to bring them back into conformity with the applicable air quality standards. Eielson is located in an *unclassified* area, and activities that generate emissions do not need to satisfy the requirements of the Environmental Protection Agency (EPA) ruling *Determining Conformity of General Federal Actions to the State or Federal Implementation Plans*.

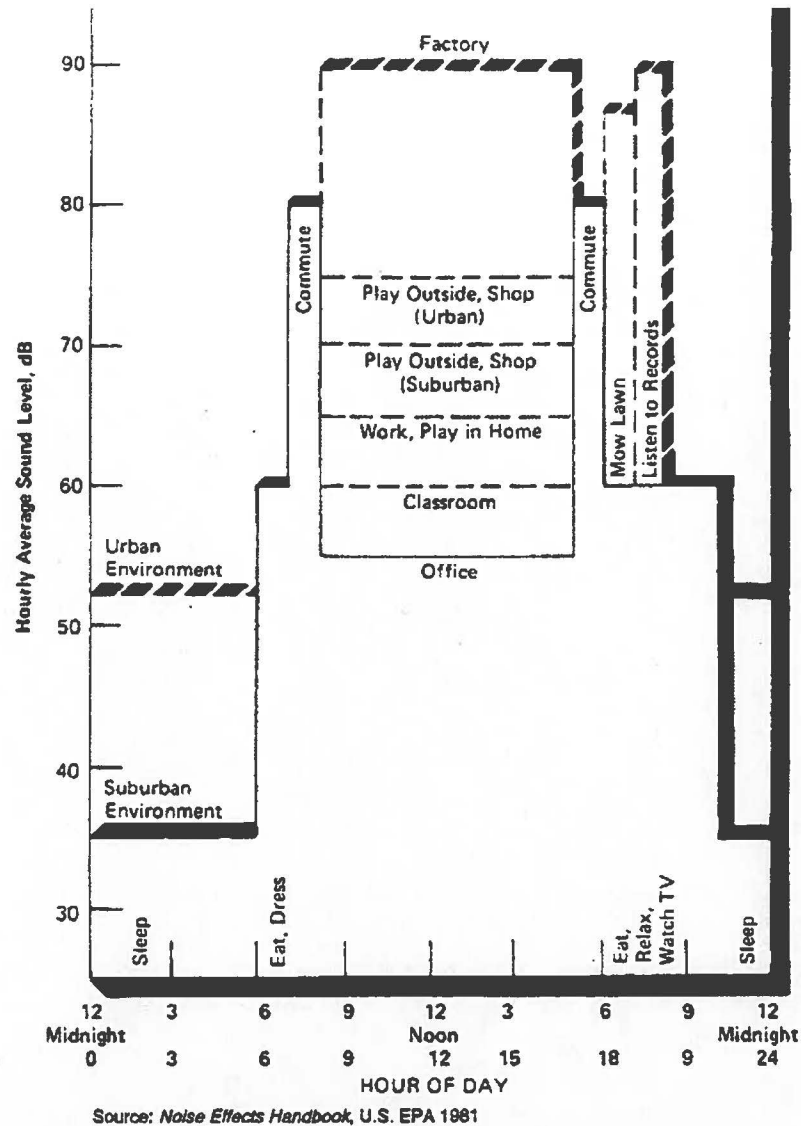


Figure 3-2 – Noise Levels

3.1.7.2 Other conditions that can affect Eielson's air quality include forest fire generated smoke from off-base sources and fugitive dust generated by on-base road traffic. Forest fires generally occur during the dry months of June and July. Fugitive dust from road traffic is generally quite localized and can be controlled through the use of best management practices. Eielson's Title V air permit from the EPA requires that, when conditions dictate, measures be taken to reduce fugitive dust.

3.1.8 Cultural Resources

In 1994, Eielson contracted for the preparation of a predictive model for the discovery of prehistoric and historic cultural resources on base lands. The predictive model was then used to conduct an evaluation of cultural resources on Eielson as required by Section 110 of the National Historic Preservation Act. The areas associated with the proposed action and alternative 1 has been determined to not contain cultural or archeological resources. In the event that during

project excavation/construction any cultural resources were encountered, activities would cease until the resources were evaluated.

3.2 Biological Resources

3.2.1 Vegetation

3.2.1.1 The vegetation of the Tanana River Valley in the vicinity of Eielson is typical of boreal forest or taiga habitats. The boreal forests of Eielson are predominantly evergreen forests dominated by black spruce and white spruce (*Picea glauca*), but also include extensive stands of deciduous forests containing paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), and balsam poplar (*P. balsamifera*). Extensive areas of shrub and herbaceous vegetation are found in wetlands, lowland areas, and the active floodplain, and are dominated by willows and other shrubs, sedges, and grasses. Bog areas are dominated by black spruce stands intermixed with peat moss (*Sphagnum* spp.) and cottongrass (*Eriophorum vaginatum*).

3.2.1.2 Vegetation contained within the project area (Figure 3-1) falls into three distinct forest cover types. They are described as follows:

3.2.1.2.1 *Balsam Poplar*. More than half of this forest type is comprised of mature, decadent balsam poplar. White spruce is also common and this eventually out competes and takes over as the predominant species. This process is enhanced by beaver utilization of poplar for food and shelter material. Understory consists of mostly alder and some willow. Wildlife use is mainly by snowshoe hare and raptors that utilize the taller, more mature poplar trees as nest sites.

3.2.1.2.2 *Birch, Mature*. This forest type is comprised mainly of mature paper birch, 2-inches or greater in diameter, and to a lesser extent, white spruce. Understory is mainly highbush cranberry and wild rose. The larger, more mature birch provide nesting sites for raptors and red squirrels use the scattered pockets of white spruce as food, shelter, and cover. Highbush cranberry and rosehips provide a food supply for ruffed grouse.

3.2.1.2.3 *Black Spruce*. The predominant species in this forest type is small to medium sized black spruce trees with occasional interspersions of paper birch and tamarack. The forest also contains areas with brush fields containing dwarf arctic birch, resin birch, or bog rosemary, and quite often the ground cover contains lowbush cranberry. Marten use the spruce for cover and red squirrels use the spruce cones for food. Because there is often discontinuous permafrost associated with these areas, soil temperatures are cold with low annual growth rate and change in composition is slow.

3.2.2 Aquatic/Fishery Resources

3.2.2.1 Lakes and streams on Eielson contain both native fish and fish stocked by the Alaska Department of Fish and Game. Native fish found in the Tanana River drainage include chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*O. keta*), silver salmon (*Oncorhynchus kisutch*), burbot (*Lota lota*), arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*),

chub (*Semotilus* spp.), several species of whitefish (*Coregonus* spp.), sheefish (*Stenodus leucichthys nelma*), rainbow trout (*Oncorhynchus mykiss*), and arctic char (*Salvelinus alpinus*).

3.2.2.2 The Alaska Department of Fish and Game stocks seven lakes and one stream on Eielson: Grayling Lake, Mullins Pit, Scout Lake, Hidden Lake, Polaris Lake, 28 Mile Pit, Moose Lake, and Piledriver Slough. Fish stocked by the Alaska Department of Fish and Game include rainbow trout, arctic grayling, arctic char, silver salmon, chinook salmon, chum salmon, and northern pike. There are no known federally listed threatened or endangered fish species, fish species proposed for listing, or critical fish habitats on Eielson.

3.2.3 Wildlife Resources

3.2.3.1 The surrounding Tanana Valley provides breeding habitat for a wide variety of migratory bird species. Bird species found on Eielson include spruce grouse (*Dendragapus canadensis*), ruffed grouse (*Bonasa umbellus*), northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*A. striatus*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). During winter, willow ptarmigan (*Lagopus lagopus*) and rock ptarmigan (*L. mutus*) are common on Eielson. Over 20 species of waterfowl including geese, ducks, loons, grebes, and scoters use aquatic habitats located on base lands.

3.2.3.2 Several species of upland birds inhabit habitats available on Eielson. These include plovers, sandpipers, grouse, woodpeckers, swallows, and several species of warblers and sparrows.

3.2.3.3 There are 32 species of mammals found on Eielson. Common species include moose (*Alces alces*), black bear (*Ursus americanus*), grizzly bear (*U. arctos*), snowshoe hare (*Lepus americanus*), marten (*Martes americana*), red squirrel (*Tamiasciurus hudsonicus*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), meadow vole (*Microtus pennsylvanicus*), red-back vole (*Clethrionomys rutilus*), and meadow jumping mice (*Zapus hudsonius*).

3.3 Threatened and Endangered Species

No threatened or endangered species, as designated by the US Fish and Wildlife Service, typically occur in any of the project areas included in the listed alternatives. This was the conclusion of an Eielson contract study entitled *Biological Survey, Final Report 1994*, that addressed the potential for the presence of endangered species on Eielson lands.

4.0 Environmental Consequences

This section discusses the probable impacts for each alternative described in Section 2.0. This section is organized according to resources and a discussion of each alternative action is provided relative to resources identified as relevant in Section 3.0.

4.1 Physical Environment

4.1.1 Soils

4.1.1.1 *Proposed Project:* The proposed project would result in disturbance to soils, mainly as the result of hydro-axing trees and the removal of large stumps. After stump removal the soil would be disked to a depth of 12 to 16 inches. This would alter existing soil profiles, mainly by mixing the heavily organic surface materials with the underlying mineral soils. This disturbance to soils would likely occur on up to 43 acres. This is the amount of acreage projected for clear-cutting under the proposed action.

4.1.1.2 *Alternative 1:* Impacts to soils would be similar to that occurring in the proposed action, but over a larger area. Up to 200 acres of cut-over forest could have their soil profiles altered.

4.1.1.3 *No Action Alternative:* No impacts to soils would result from this alternative.

4.1.2 Groundwater

The water table on Eielson varies from the surface in adjacent wetlands to 10 feet below ground level in developed areas. In the vicinity of the proposed project and alternative 1, groundwater is found at varying depths. Since none of the action alternatives require excavation to a depth that would reach groundwater, it is felt that no impacts to groundwater would occur from any of these alternatives.

4.1.3 Surface Water and Wetlands

4.1.3.1 *Proposed Action:* The proposed action would not likely impact wetlands in the vicinity of the project area. All the forested areas that would be cut are designated as uplands. In management areas L and K (see Figures 2-1 and 4-2), there are two man-made ponds that would require the removal of riparian vegetation at the east end of each pond. Even with the tree removal, most of the ponds' riparian vegetation (willow/alder shrubs) will remain intact.

4.1.3.2 *Alternative 1:* This alternative would result in more total acreage being impacted, and a larger portion of the man-made ponds' riparian vegetation removed. None of the forested areas proposed for clear-cutting in this alternative are in wetlands.

4.1.3.3 *No Action Alternative:* The no action alternative would not impact surface water resources or wetlands.

4.1.4 Safety

4.1.4.1 *Proposed Action:* Aircraft operational safety is of paramount importance at Eielson. The removal of airfield obstructions from the vicinity of the flightline is a high priority. The actions that will be taken as part of the proposed action will improve airfield safety greatly.

4.1.4.2 *Alternative 1:* This alternative will also greatly improve airfield safety. The clear-cutting of all trees in the vicinity of the imaginary surfaces, rather than selective cutting as would occur in the proposed action, would likely provide a greater level of safety over the long term (5 to 10 years), as no follow-up surveys would be required to determine whether new tree growth had resulted in the creation of additional airfield hazards.

4.1.4.3 *No Action Alternative:* The no action alternative would result in the continued use of an airfield that is in violation of Air Force runway safety standards.

4.1.5 Noise

The proposed action, as well as alternative 1, could potentially result in noise impacts. They would be minor and highly localized, however, due mainly from operation of equipment used to remove trees and level the land.

4.1.6 Air Quality

Activities associated with both action alternatives could be a minor source of impacts to air quality. These impacts would likely result from machinery exhaust and fugitive dust generated by equipment operation during construction. Eielson is required by its EPA Title V permit to take measures to reduce fugitive dust. Typical measures taken for this project might include:

- Water application as needed on all unpaved parking, staging, and driving surfaces.
- When feasible, covering truck loads.
- Use of street sweepers on paved road surfaces to keep free of dust buildup.

4.1.7 Cultural Resources

There are no identified cultural resources in the vicinity of any of the project areas. Therefore, it is unlikely that impacts to cultural resources would occur from any of the action alternatives. In the event any resources were uncovered, activities would cease until a qualified archeologist assessed the find.

4.2 Biological Resources

4.2.1 Vegetation

4.2.1.1 *Proposed Project:* Extensive impacts to as much as 43 acres of forest lands will result from the implementation of the proposed action. The degree of these impacts will not be known until all forested areas in the Airfield Tree Management Plan have been surveyed. Units A-K

will need to be clear cut (see Figure 2-1). Other areas will require that trees of a certain height be selectively cut to remove them as an airfield hazard. Other trees may have their tops trimmed. The areas that will be clear-cut will result in impacts to a variety of small mammals and birds. The taller, mature spruce, birch, and poplar, serve as nesting sites for raptors. Smaller trees and shrubs, such as alder, willow and dwarf birch, provide nesting and resting perches for a variety of passerine bird species. Small mammals, such as snowshoe hare and beaver, will be impacted to a lesser extent as they depend on these forests for food and shelter. Most species will be displaced to adjoining similar habitat and little if any population-level impacts would likely occur.

4.2.1.2 Alternative 1: This alternative would result in more extensive, but similar impacts as would result from the proposed action. Instead of selective cutting in some of the management units, all units would be clear-cut. This would result in the loss of more than 200 acres of mixed spruce/paper birch forest. The value of this habitat and the potential impacts that would likely result are similar to that for the proposed action but on a larger scale. The use of this forest habitat by various wildlife species is more limited than other comparable habitat that is not in close proximity to a flightline where aircraft noise acts as a disturbance for some species such as birds and larger mammals. In addition, some of the habitat is fragmented by the flightline on one side and the Richardson Highway on the other (see Figure 4-1).



Figure 4-1 – Fragmented Habitat to the West of the Flightline

4.2.1.3 No Action Alternative: This alternative would have no impact on vegetation.

4.2.2 Aquatic/Fishery Resources

There would be few, if any, impacts to aquatic resources associated with either the proposed action or alternative 1. The activities associated with this project are not within close proximity to any of the base's aquatic resources. The proposed action would require some limited tree clearing near two small, non-fish bearing man-made ponds just west of the Richardson Highway. Alternative 1 would potentially impact more of this type of habitat, although the total acres will not be known until the tree heights are surveyed. The closest stream to the project area is Piledriver Slough, more than 400 feet away. Best management practices such as installing silt fences and reseeding disturbed soils, would likely minimize or eliminate impacts to aquatic resources from the proposed action or alternative 1.

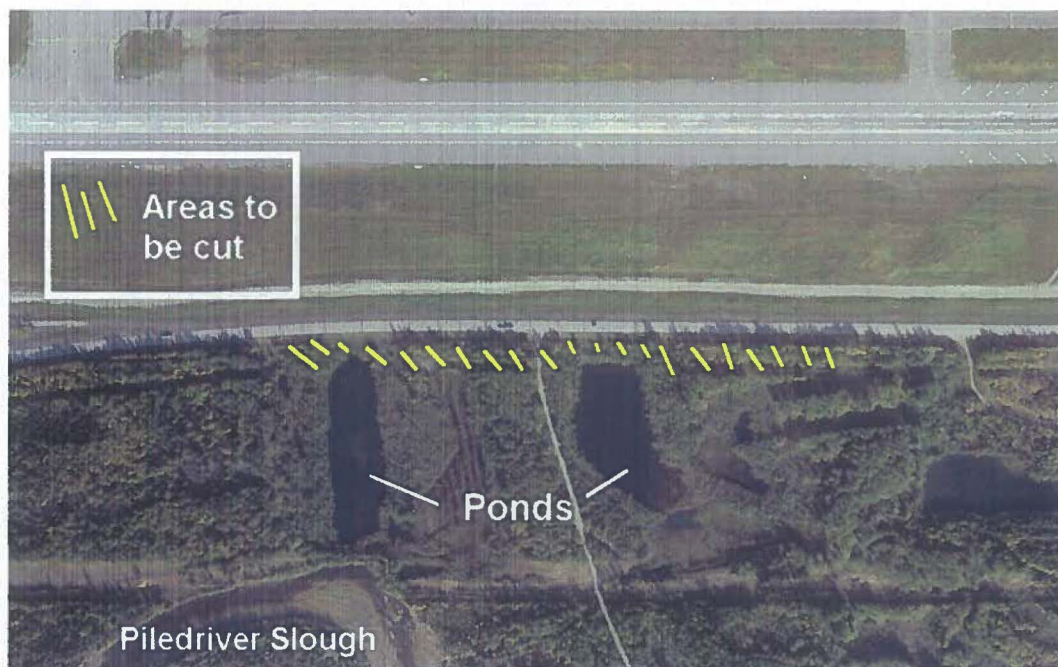


Figure 4-2 – Tree Cutting Near Pond Systems Required With the Proposed Action

4.2.3 Wildlife Resources

4.2.3.1 Proposed Project: The proposed action would result in the loss of approximately 43 acres of mixed spruce/paper birch forest. This forested area provides moderate-value habitat for a variety of small mammals and birds, including snowshoe hare, beaver, marten, and several species of passerine birds. Other birds that utilize the area include raptors (hawks and falcons) and upland game bird including spruce and ruffed grouse. Not all habitat included in the AOMP will be impacted under the proposed action; some portions will only receive selective removal and limited trimming of trees. These areas would retain much of its current habitat value. Many portions of the AOMP have been previously impacted and as a result have reduced habitat value. These impacts have resulted from previous clearing activities associated with airfield maintenance and have served to fragment the habitat (see Figure 4-1).

4.2.3.2 *Alternative 1*: Wildlife resource impacts under this alternative would be similar in type to those described for the proposed action, but the extent of impacts would be significantly greater. The amount of acreage impacted would be potentially four times that under the proposed action, potentially affecting as much as 200 acres.

4.2.3.4 *No Action Alternative*: The no action alternative would have no affect on wildlife habitat on Eielson.

4.2.4 Threatened and Endangered Species

There are no threatened or endangered species on Eielson lands and no impacts to these species would result from any of the alternatives considered in this EA.

4.3 Cumulative Impacts. The National Environmental Policy Act (NEPA) process requires that the issue of cumulative impacts be addressed. This section provides (1) a definition of cumulative effects, (2) a description of past, present, and reasonably foreseeable actions relevant to the cumulative effects analysis, and (3) an evaluation of cumulative effects potentially resulting from these interactions.

4.3.1 Definition

The Council on Environmental Quality has stated in their NEPA regulations (1508.7) that *"Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions...and...can result from individually minor but collectively significant actions taking place over a period of time."* Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location and/or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than actions that may be geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

4.3.2 Past and Present Actions Relevant to the Cumulative Effects Analysis

Over the years, Eielson has been very cognizant of the issue of cumulative impacts to wetlands. This is due to the fact that the base, to a large extent, was built as the result of filling wetlands, and that expansion of Eielson facilities beyond the original footprint of the base often requires the use of wetlands. Of the 19,789 acres that constitutes Eielson lands, 51 percent are designated as wetlands. To address the potential for cumulative impacts to wetlands, Eielson has developed an active program of wetland habitat creation and enhancement. Classification of Eielson wetlands according to type and quality (as defined in Cowardin, et al, US Fish and Wildlife Service, 1979) has indicated that 98.1 percent of Eielson native wetlands are of relatively low quality. Most of these wetlands are classified as black spruce or alder/willow scrub/shrub wetlands and constitute large, homogenous blocks of land that provide relatively low wetland values to wildlife. When Eielson develops a gravel source by excavating alluvial gravel deposits, it is often in these black spruce wetlands. As part of the gravel extraction process,

wetlands of a higher value are created (lake habitat with shallow littoral zones and emergent vegetation). This type and quality of wetlands are particularly valuable for feeding, nesting, and brood rearing by waterfowl.

4.3.3 Reasonably Foreseeable Future Actions

4.3.3.1 In addition to past and present actions that could cumulatively result in significant impacts, the analysis should also consider projects that are planned in the foreseeable future. Eielson has a Base General Plan that lists projects planned for construction as far as 5 years ahead. However, statuses of these projects often change and it is hard to predict accurately more than 2 or 3 years ahead which projects will be constructed. For the purpose of this cumulative effects analysis, only projects that are planned for the next 2 years are considered.

4.3.3.2 Most of the projects scheduled for completion on Eielson during the next 2 years are associated with the build up for RED FLAG-Alaska training exercises. These projects include numerous facility renovations including office buildings, hangars, and aircraft parking ramps. All of these projects will be in the main cantonment area of the base and in conjunction with areas that have been previously impacted through development. These projects have been tiered to a programmatic EA entitled, *Omnibus Base Construction in the Developed Portion of the Base Programmatic Environmental Assessment*. Use of this programmatic EA for NEPA analysis of a proposed project requires as a prerequisite that the action(s) not result in cumulatively significant impacts.

4.3.4 Analysis of Cumulative Impacts

The cumulative impacts analysis must look at the sum total of the past, present, and foreseeable future actions and determine whether a relationship could exist that could result in potentially significant impacts not identified when the proposed action is considered alone. To date all cumulative impact analyses that have been completed in Eielson's NEPA documents have arrived at the conclusion that cumulative impacts from base activities have not reached the threshold of significant. The current proposed action will result in the loss of 43 acres of low- to moderate-value black spruce, white spruce, birch, and aspen forest habitat. To mitigate this loss of forest habitat, trees will be planted in other portions of the base where it will provide similar habitat but not in a location where they will be airfield obstacles. When taking into consideration this mitigation and also the habitat creation that occurs under the auspices of Eielson's program of wetland creation/enhancement, the net gains in habitat value have more than offset the losses. Since the program was implemented in 1989, Eielson has created more than 330 acres of enhanced wetlands.

4.4 Environmental Justice

4.4.1 President Clinton issued Executive Order (EO) 12898, *Environmental Justice in Minority Populations and Low-Income Populations*, on February 11, 1994. Objectives of the EO, as it pertains to the NEPA process, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. To accomplish these

requirements, the Air Force must conduct an environmental justice analysis of all potential impacts that may result from the proposed actions.

4.4.2 The environmental justice analysis must first identify all adverse impacts associated with the project. The next phase is to delineate the potential area of impact for the resources affected. Within this area of impact, if population demographics are such that a disproportionate effect on minority or low-income populations may occur, it should be so identified. These impacts should be documented and mitigation should be developed that can be implemented by the Air Force.

4.4.3 The site for the proposed action is immediately adjacent to the flightline. The area surrounding the flightline is industrial and does not exhibit any pattern of population demographics. The actions associated with this project would have equally beneficial effects on a full cross section of the demographics of Eielson's base population. Based on the environmental impacts identified in this EA and on a corresponding environmental justice analysis, it is felt that no disproportionate impact to minority or low-income populations would occur from implementation of the proposed project. This same analysis would also be true for alternative 1 and the no action alternative.

4.5 Mitigation

There will be substantial tree loss as a result of both the proposed action and alternative 1. To mitigate for the loss of forested habitat, Eielson's Natural Resource Management Section will develop a tree planting program that will mitigate by planting white spruce, birch, and aspen trees. It will be conducted in conjunction with their Tree City USA tree planting program that annually plants trees in areas of the base that are identified as appropriate for such actions.

5.0 List of Persons and Agencies Consulted

Mr. Brent Koenen, USAF, 354 CES/CEVN, Eielson AFB, AK, phone 377-5182

Mr. Larry Bright, US Fish and Wildlife Service, Fairbanks, AK, phone 456-0322

Mr. M. MacLean, State Department of Natural Resources, Habitat Management Office, phone 459-7254

6.0 Glossary

Alluvial - Sediment deposited by flowing water.

Cantonment - The main operational area of a military base.

Culvert - A drain crossing under a road or an embankment.

Environmental Impact Analysis Process (EIAP) - A set of guidelines (Air Force Instruction 32-7061) that the Air Force uses to comply with the NEPA process.

Decibel - A unit of measurement for describing sound intensity.

Executive Order 11990 - Mandate to federal agencies to follow the NEPA process to ensure the protection of wetlands.

Habitat - The area or environment in which an organism or ecological community normally occurs.

Installation Restoration Program (IRP) - An Air Force program mandated to identify, investigate, and clean up contamination associated with past Air Force activities.

Mean Sea Level (MSL) - The average surface level for all stages of the tide over a 19-year period, usually determined from hourly height readings from a fixed reference point.

National Environmental Policy Act (NEPA) - Legislation enacted in 1969 mandating that all federal agencies assess the environmental impacts of actions which may have an impact on man's environment.

National Historic Preservation Act - Federal mandate that requires the preservation of prehistoric and historic sites.

Non-Attainment Area - An area exceeding National Ambient Air Quality Standards for one or more criteria pollutants.

Permafrost - Permanently frozen subsoil occurring in perennially frigid areas.

Riparian - Living or located on a riverbank or a natural course of water.

SAFO 780-1 - Secretary of the Air Force Order and reference number.

Seasonally Persistent - Persistence is based on historical records and field evidence that indicates an area is seasonally inundated with water during non-frozen (spring/summer) portions of the year.

Turbidity - Cloudy or hazy appearance in a naturally clear liquid caused by a suspension of colloidal liquid droplets or fine solids.

Understory - A foliage layer occurring beneath and shaded by the main canopy of a forest.

Upland - An area of land of higher elevation often used as the opposite of a wetland.

Wetlands - Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

404 Wetland - Wetland areas that have been determined “waters of the United States” and thus subject to Section 404 wetland permitting guidelines administered by the US Army Corps of Engineers and the Environmental Protection Agency.

100-Year Floodplain - Based on historical evidence, there is a high probability that the area within the 100-year floodplain will be flooded once every 100 years.

7.0 Public Notice

USAF ANNOUNCES an ENVIRONMENTAL ASSESSMENT

In accordance with the National Environmental Policy Act, and Air Force regulations, Eielson Air Force Base has completed an environmental assessment (EA) and Finding Of No Significant Impact (FONSI) to evaluate the consequences of the following stated proposed action:

Implement an Airfield Obstruction Management Plan that would result in the removal of approximately 43 acres of trees that pose as airfield obstacles along the western boundary of Eielson's flightline. Part of this area may only require partial clearing and/or trimming to eliminate trees that intersect with the airfield imaginary surfaces, including the approach/departure clearance surface and the transitional surface. Trees that are only trimmed will be done so at a height of 10 feet below the actual imaginary surface to allow for a margin of error and future growth of the trees.

PUBLIC COMMENT WELCOME

To review the draft EA and FONSI, copies are available at the Noel Wien Library in Fairbanks. The public is invited to review these documents and make comments during the 30-day comment period from now until 1 September 2007. To get a copy of the EA, to comment, or for more information contact Jim Nolke, Eielson AFB Environmental Flight, at (907) 377-3365, or by mail at 354 CES/CEVP, 2310 Central Ave, Ste 100, Eielson AFB, AK 99702-2299.

Public Announcement was published in the Fairbanks Daily News Miner on 1 August 2007.